



# Air Force Research Laboratory|AFRL

*Science and Technology for Tomorrow's Air and Space Force*

## **Success Story**

### **MATERIALS RESEARCHER RECOGNIZED BY AFFILIATE SOCIETIES COUNCIL FOR OUTSTANDING CONTRIBUTIONS TO AIR FORCE AND INDUSTRY**



The Affiliate Societies Council of Dayton, Ohio, recognized Dr. Loon-Seng Tan, from the Materials and Manufacturing Directorate, for outstanding contributions in science and engineering for his ideas, leadership, and motivation toward high achievement in materials research required for current and future Air Force systems. His selection enhances AFRL's reputation as a world leader in materials research and development and recognizes the skill and professionalism of directorate scientists and engineers.



Air Force Research Laboratory  
Wright-Patterson AFB OH

Materials and Manufacturing  
Awards and Recognition

## Accomplishment

The Affiliate Societies Council recognized Dr. Tan, from the directorate's Nonmetallic Materials Division, for contributions supporting both operational and future Air Force systems as well as his expertise in high-temperature synthetic polymer chemistry. His individual efforts and technical leadership working with benzocyclobutene (BCB) and aromatic heterocyclic polymer systems led to numerous successes in the directorate's Polymers Branch and were critical to the transitioning of research breakthroughs for industrial development.

## Background

Each year, the 15,000-member Affiliate Societies Council recognizes engineers and scientists from throughout the Greater Dayton/Miami Valley area for outstanding technical accomplishments in their research field. Dr. Tan was one of 11 individuals honored at the organization's 44<sup>th</sup> Annual Awards Banquet in conjunction with National Engineers' Week.

Dr. Tan is a principal research chemist and the directorate's research group leader for polymer synthesis and characterization. In addition to leading and conducting in-house research in structural, opto-electronic and multifunctional materials, he also initiates and monitors research and development contracts complementary to the directorate's in-house research programs.

Dr. Tan's achievements cover a diverse range of scientific and technological areas. He discovered a new addition cure chemistry that led to the development of BCB materials; conceived and demonstrated a chemical route to improve the toughness and use temperature of bismaleimide resins using addition chemistry; and successfully developed a family of new rigid-rod, high-molecular-weight, pseudo-ladder polymers.

Dr. Tan designed and synthesized acid-stable thermoset monomers for use as a matrix resin in molecular composite technology. He also conceived and experimentally proved a route to control the semiconductivity of high-temperature polymers by incorporating triaryl amino and diphenyl amino functions into rigid-rod backbones.

Dr. Tan's credits include 92 published articles, 65 presentations, and 39 patent actions. He is a leading expert in his field and recognized nationally and internationally for his work.

Dr. Tan earned his undergraduate degree in chemistry from Harvey Mudd College, in Claremont, California, in 1976 and received a doctorate degree in inorganic chemistry at Indiana University in 1981. He is a former assistant professor of chemistry at Wright State University in Dayton, Ohio, and a former research scientist for the University of Dayton Research Institute, also in Dayton, Ohio.

## Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-ML-20)